REMARKS/ARGUMENTS

Amendment of the Claims

Claims 1-20 are currently pending in the present application. Claims 1, 6 and 18-20 are amended by adding "forms of" in the phrase "having at least two different **forms of** microreaction channels". Support for this amendment is found in paragraph [0006], among others, of Applicants' specification.

The other amendment to claims 1, 6, and 18-20 is to change "independent " to the adverb form "independently".

Claim 7 is amended to remove an extra comma.

Applicants submit that the amendments add no new matter. Entry of the amendments is therefore respectfully solicited.

Rejection for Anticipation

In the Final Office Action, the Examiner maintains the rejection of claims 1-6, 8 and 10-20 under 35 U.S.C. §102(e), as being anticipated by U.S. Patent Application Publication No. 2002/0014106A1 of Srinivasan, et al. (hereinafter referred to as "Srinivasan"). The Examiner refers to the contention in the office action of September 14, 2004 that Srinivasan discloses a microfabricated microdetection array made of a glass/silicon composition, the array having a plurality of reaction spaces. The Examiner further contends that paragraph [0046] of Srinivasan discloses the use of a silicon dioxide coating having a thickness "indistinguishable from the claimed range." (See, the office action of September 14, 2004 , p. 3). [Applicants note that the silicon dioxide coating is irrelevant to the present claims as that subject matter is disclosed and claimed in the Applicants' co-pending application 10/076,736, cited by the examiner herein under the double patenting of the obviousness-type rejection.]

In the Final Office Action, the examiner states further:

> "Applicants state that Srinivasan et al. fails to teach "at least two different microreaction channels". However, Applicants correctly characterize Srinivasan et al. in the first full paragraph on page 3 of 3/14/05 response as teaching 4 or more different analysis channels. The Office has read "different" as meaning "separate or distinct". The Office maintains Srinivasan et al. has been properly read on the instant claims as teaching at least two different (e.g. separate or distinct) microreactor channels."

In view of the amendment to the claims presented herein, clarifying what is different between the micro channels of the claimed microreactors, applicants respectfully request reconsideration and withdrawal of the rejection under 35 USC 102(e).

In accordance with the foregoing amendment of claims 1, 6, and 18-20, Applicants' claimed invention is now more clearly directed to chip reactors comprising a carrier having at least two different forms of microreaction channels, each of the channels comprising at least one reaction space, at least one inlet and at least one outlet, wherein each of the channels is suitable for operation independently of the other.

The presently claimed invention is succinctly stated in the Specification on page 2, at the beginning of paragraph [0006], as follows:

> "The essence of the invention is that it combines a number of possible forms of microreactor in one miniaturized structural component in an exemplary manner. In this connection, "form" means above all the geometric arrangement of the microreaction systems or reaction spaces (preferably channels) and their geometric dimensions and also the way in which and the geometric site at which the reactants are mixed."
> (Emphasis added.)

Thus, as set forth in paragraph [0007] of the Specification,

> "Accordingly, the new chip reactor makes it possible - by problem-free actuation of the individual microreaction spaces - to test a number of possible forms of microreaction systems for their suitability for liquid-phase reactions and optimization of the test results so that a number of experiments can be carried out far more quickly and with less outlay."

In other words, Applicants' invention is directed to chip reactors having at least two microreaction channels that are not identically shaped. For example, in one preferred embodiment of Applicants' invention, as shown in Figure 1, a chip reactor has 19 different microreaction channels of different forms, i.e., of different geometric configuration (or shape).

In contrast, Srinivasan is directed to a gas chromatograph which has four or more analysis channels, one for each of the four or more gas chromatography columns described therein. (See, e.g., ¶ [0008]). However, it is clear from the disclosure of Srinivasan that each of the microdetectors, or thermal conductivity sensor channels, is identical to the others. Thus,

while the microdetector channels are described as having an inlet for the gas sample, an outlet for the gas sample, and a detection cavity -- each inlet/cavity/outlet is the same.

In paragraph [0010], which describes a preferred embodiment, Srinivasan states: "Each of the six or more sample thermal conductivity sensors comprises an inlet port in fluid communication with the outlet of the gas chromatography columns for receiving a separated sample . . . ." Thus, the microdetector (chambers) of Srinivasan are not reactor chambers or channels. They simply hold a sample whose thermal conductivity is being instantaneously being measured. Thus, Srinivasan does not disclose a microreactor chip.

Accordingly, Srinivasan fails to teach each and every element of the claimed invention, most notably, a chip **reactor** comprising a carrier having at least two different **forms of** microreaction channels. Accordingly, Srinivasan fails to anticipate the claimed invention. Applicants therefore respectfully request reconsideration and withdrawal of the Examiner's rejection under 35 U.S.C. §102(e).

Rejection for Obviousness

In the Final Office Action, the Examiner maintains the rejection of claims 7 and 9 under 35 U.S.C. §103(a), as being unpatentable over Srinivasan, again referring to the office action of September 14, 2004. Therein, the Examiner contends that, while Srinivasan is silent as to the length of a reaction channel and the mixing angle, that such elements are simply the routine optimization of result-effective variables. On that basis, the Examiner argues that the claims are obvious. Applicants respectfully disagree and request reconsideration and withdrawal of the rejections.

As mentioned above, Applicants' claimed invention is now more clearly directed to chip reactors comprising a carrier having at least two different **forms of** microreaction channels, each of the channels comprising at least one reaction space, at least one inlet and at least one outlet, wherein each of the channels is suitable for operation independently of the other.

As noted above, paragraph [0010] of Srinivasan establishes that the only function of its microdetection chambers (or channels) is to detect. They are designed only to receive an already separated sample and continuously measure its thermal conductivity. Applicants submit that Srinivasan thus provides no motivation or basis to establish suitable lengths, more than one inlet

or a mixing angle for Applicants' microreactors in accordance with the rejected claims 7 and 9. Nor, does Srinivasan provide any motivation or basis for providing microreaction chambers or channels **of different forms** per Applicants' independent claim 1 - from which claims 7 and 9 depend.

Accordingly, Applicants submit that the Examiner has failed to establish a prima facie case of obviousness based upon Srinivasan. Withdrawal of the rejection of dependent claims 7 and 9 under 35 U.S.C. §103(a) is respectfully requested.

Rejection for Obviousness-Type Double Patenting

In the Final Office Action, the Examiner maintains the provisional rejection of claims 1-20 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10 of copending U.S. patent application serial no. 10/076,736 ("the copending application"). The Examiner argues that while the claims are not identical, they are not patentably distinct from each other because both sets of claims are directed to microreactors of identical composition. Applicants respectfully request reconsideration and withdrawal of this rejection for double patenting of the obviousness-type.

Corresponding claim 11 of USSN 10/076,736 reads as follows:

"Claim 1: A microreactor which inhibits unwanted reactions in the microreactor comprising at least one microreaction system contained on a carrier material, the microreaction system comprising:
(a) at least one microreaction space;
(b) at least one inlet for receiving educts into the microreaction space;
(c) at least one outlet for discharging reaction products from the microreaction space; and
(d) an inert coating material covering a reaction surface of the microreaction system."
(Emphasis added.)

There is nothing in this claim directed to the form of the microreaction channels of the microreactors. Applicants submit that the inert coating (d) does not affect the form of the reaction chamber (channel).

The claims of the instant application, on the other hand, are directed to chip reactors comprising a carrier having at least two different **forms** of microreaction channels, each of the

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channels comprising at least one reaction space, at least one inlet and at least one outlet, wherein each of the channels is suitable for operation independently of the other.

Accordingly, Applicants submit that the instant claims are not obvious in view of the claims of the copending application, and respectfully request withdrawal of the rejection under the judicially created doctrine of obviousness-type double patenting.

Applicants note further that the object of a double patenting of the obviousness-type rejection, namely, to assure that applicant does not extend patent term, would not appear to be in play in this situation. The patent term is now 20 years from date of filing. The subject application has a filing date one day prior to the reference application, that is, February 14, 2001 v. February 15, 2001. Thus, the present patent would, in any event, expire before the reference patent and the basis for the double patenting rejection is moot.

In view of the amendments and remarks set forth above, Applicants submit that all pending claims patentably distinguish over the prior art of record and known to Applicants, either alone or in combination. Accordingly, withdrawal of the rejections and a Notice of Allowance are respectfully requested.

Respectfully submitted,

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